

PATENT SPECIFICATION

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COMPLETE SPECIFICATION.

Magneto-electric Lighting Machine.

I, LOUIS HEMMELER, of 12A, Plaenkestrasse, Bienne Canton of Berne, Switzerland, a Swiss citizen, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

Owing to the fact that magneto-electric lighting machines are mostly used for bicycles and motor cycles and that they ought to be therefore not very conspicuous by their size and appearance a special attention must be paid to their exterior dimensions. This requires a very simple small winding which normally is put under a heavy stress and can only be adapted with difficulty to the frequent changes of revolution caused by the varying speed. Now if such a machine should also be employed for occasionally feeding of a second circuit of a backlight it would have to be provided with complicated electric regulators which on account of their smallness would be very unreliable and would not only cause great fluctuations in the illuminating power but also notably increase the lamp consumption.

It is the object of this invention to provide a magneto-electric lighting machine which without increasing the outer dimensions is composed so that an additional circuit can be fed temporarily without interfering with the main lighting circuit. For this purpose the yokes of the horse shoe magnets are used for placing a special system of magnets acting on a second winding on a separate armature. This magnetic system rests on an intermediate bearing of the common shaft of the two coils and turned in such a way towards the main magnetic system that a deflection of the lines of force of the secondary system towards the additional winding takes place.

The annexed drawing represents a working example of a lighting machine constructed according to the present invention.

Fig. 1 is a longitudinal section of the generator.

Figs. 2 and 3 are cross sections on the lines II—II and III—III respectively of the Fig. 1.

Fig. 4 is a diagrammatical representation of the arrangement of the poles.

The shaft *a* is mounted in ball-bearings *b* and *c* whereof the first is located in a shield *d* which in a known manner carries the brushes and a support *e* made of non-magnetic material for the magnets *f* of the main system. The bearing *c* is mounted within said support *e* and the field magnets *h* of the secondary system rest on shoulders *g* of said support. These magnets *h* rest near the end of the shaft *a* against a second shield *i* and the whole is maintained by means of screws arranged parallel to the shaft *a* and are screwed into the holes *e'* of the support *e*.

The magnets of the secondary system are arranged in such a manner with regard to those of the main system that as shown in the diagrammatical view in Fig. 4 their similar poles are facing each other so that the lines of force of the inner magnets will be caused to pass through the laminated core *l* and that the magnets do not weaken each other.

The end of the shaft *a* carries an insulating piece *m* to which is fixed a contact piece *n* electrically connected to one end of the additional winding. The insulated brush *o* mounted within the second shield *i* serves in common with the body contact *p* for attaching the wires of the additional circuit. The latter is quite independent of the main lighting circuit, which has its terminals at *p* and *q*, and can be opened or closed independently without any influence on the electrical conditions of the main circuit winding mounted on the same shaft. The hollow space formed by the legs of the magnet which in order to form a good magnetic field have been made of considerable length has been turned to good profit inasmuch as in spite of the additional winding neither the length nor the thickness of the machine has needed to be increased.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Magneto-electric lighting machine

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having two independent magneto generating units with horseshoe magnets arranged one inside of the other, characterized in that the armatures of both systems are arranged one after the other on a common axis and that the legs of the magnets are extended longitudinally along the cylindrical delimitation of the space required by said armatures and are curved accordingly.

10 2. Magneto-electric lighting machine according to Claim 1, characterized in that

the horse-shoe magnets of the two lighting circuits are arranged so as to have their similar poles facing each other in order to cause the lines of force of the inner magnets to pass through the laminated core of the inner armature. 15

Dated this 24th day of December, 1927.
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[This Drawing is a reproduction of the Original on a reduced scale.]

Fig.1.

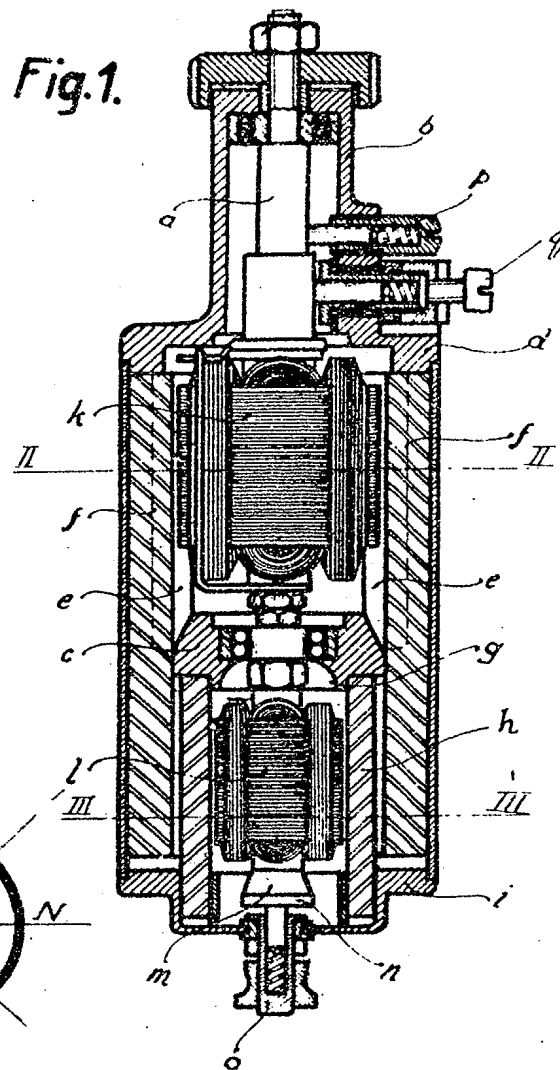


Fig.4.

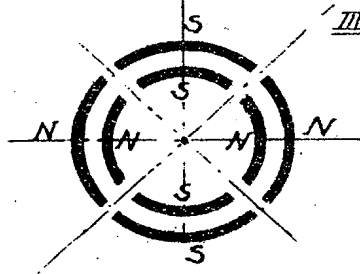


Fig.2.

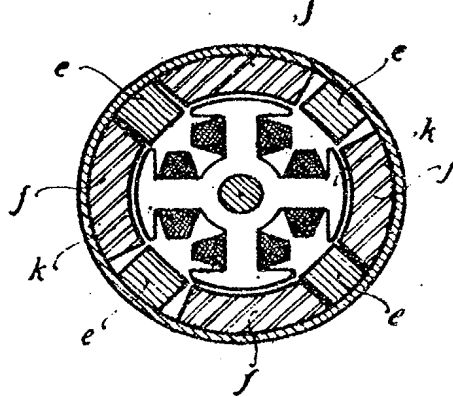


Fig.3.

